

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Howard A. Kingsford
Serial No. : 09/440,384
Filed : November 15, 1999
Title : SKIN ATTACHMENT MEMBER

Art Unit : 1772
Examiner : M. Patterson

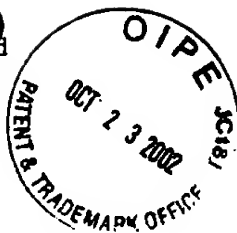
Commissioner for Patents
Washington, D.C. 20231

DECLARATION UNDER 37 C.F.R. § 1.132

I, Andrew C. Harvey, hereby declare that:

1. I received a Bachelor of Science degree in Mechanical Engineering from Pennsylvania State University in or about 1952 and completed additional graduate-level coursework in Mechanical Engineering during the period of about 1953-56. I have been employed at Foster-Miller, Inc. since 1960, where I currently hold the position of Senior Staff Engineer and in which I primarily provide consulting and design services in the areas of application of materials and manufacturing techniques, and in particular, in the area of plastic processing/shaping techniques, including tool-forming techniques such as masking and etching. I am a named inventor on more than 20 patents related to one or more of the above-identified technical fields.

2. On information and belief, masking and etching to produce shaped products typically includes providing a base substrate, applying a mask to the base substrate, and then exposing the masked substrate to a solvent to at least partially remove a portion of the unmasked material. These general steps can be repeated and, by varying the pattern of the mask applied as well as the type and strength of the solvent and/or the duration of exposure of the substrate to the solvent, a desired shape can be produced.



3. I have read U.S. Patent No. 5,312,456 (the '456 patent), granted May 17, 1994, to Reed et. al and, based on my reading, I understand the '456 patent to teach a method for forming "barbs" that extend from a base, each barb having a head with a central portion and extremity portions, which extend from the central portion to overhang the base. In particular, and with reference to Fig. 2 of the '456 patent, which is reproduced below, I have noted the following passage from the '456 patent:

[t]he head 20 preferably has a central portion 24 which is connected to the support 18 and an extremity portion 26 which extends from the central portion 24 and which directly forms the locking connection with the object. The base 22, head 20 and support 18 are made of a rigid material. The rigid material can be, for instance, metal, ceramic, plastic, composite material or alloy.

Col. 3, lines 35-42.

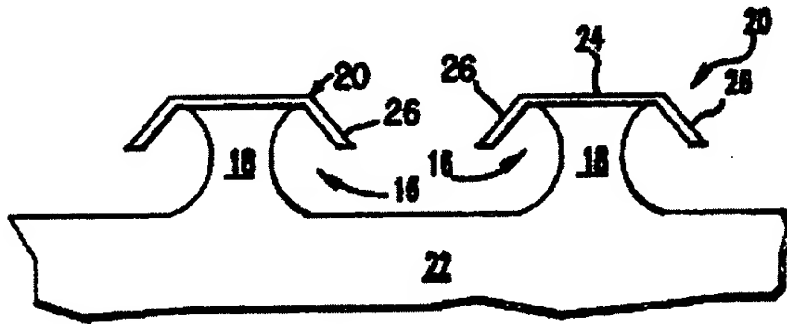


FIG.2



4. According to the '456 patent, to such produce barbs 16, masking and etching techniques are employed to form the extremity portions 26 that overhang the base 22. Such "undercut etching" is accomplished by the '456 patent by first providing a multi-layered base substrate (See underlying layer 34 and overlying layer 36 of Fig. 9C of the '456 patent, which is reproduced below).

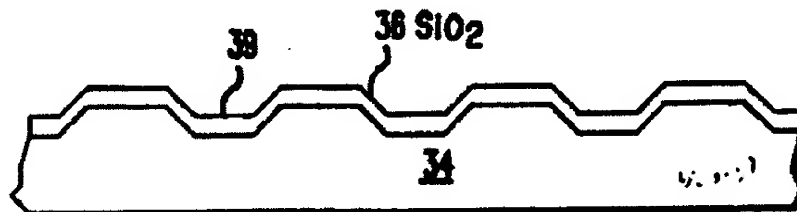


FIG. 9c

5. Subsequently, portions 39 of the overlying layer 36 are removed to expose corresponding portions of the underlying layer 34. Finally, the exposed portions of the underlying layer are partially etched away by "lateral undercutting" to leave the remaining portions of the overlying layer centrally supported by the remaining portion of the underlying layer (See the remaining portion of underlying layer 34 supporting the remaining portions of overlying layer 36 in Fig. 9d of the '456 patent, which is reproduced below).

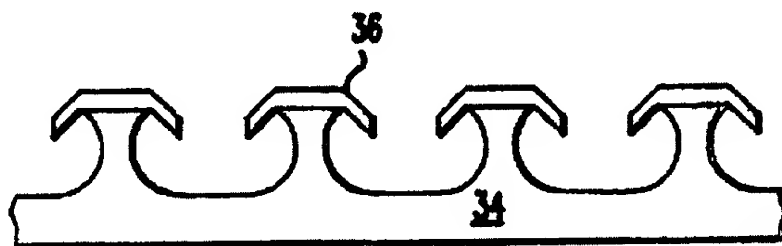


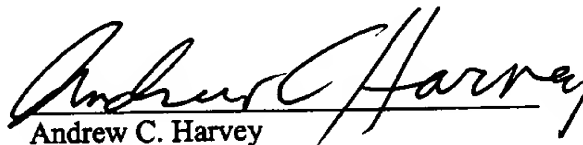
FIG. 9d

6. To achieve the "lateral undercutting," col. 6, line 51, so that extremity portions 26 that overhang the base formed by underlying layer 34, it is important that the underlying layer 34 be

more susceptible to the applied etchant than the overlying layer 36 in this final step. In the sole example disclosed in the '456 patent, the underlying layer is of silicon (Si), the overlying layer is of silicon dioxide (SiO₂), and the etchant is HNO₃/CH₃COOH/HF. (Col. 6, lines 50-60 and Fig. 9).

7. Based on my review of the entire disclosure of the '456 patent and my experience in techniques for shaping/forming plastics, I conclude that the '456 patent in no way teaches or suggests a technique for manufacturing a barb in which the base 22, head 20, including central 24 and extremity portions 26, and support 18 are all formed *integrally of a single plastic resin*.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.


Andrew C. Harvey

Date: 20 June 2002

DJS

Fish & Richardson P.C.
225 Franklin Street
Boston, Massachusetts 02110-2804
Telephone: (617) 542-5070
Facsimile: (617) 542-8906

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